DOCUMENT RESUME

ED 415 225 SP 037 741

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TITLE	Gender and Motivational Orientation among High School Students.
PUB DATE	1995-08-00
NOTE	14p.; Paper presented at the Annual Meeting of the American Psychological Association (New York, NY, August 1995).
PUB TYPE	Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Curiosity; Grades (Scholastic); High School Students; High Schools; Self Management; *Self Motivation; *Sex Differences; *Student Motivation
IDENTIFIERS	Challenge

ABSTRACT

This study explored possible gender differences in intrinsic motivation among 120 white students at a semi-rural high school. Researchers drew students randomly from each of the four grade levels. Students provided information on age, grade level, and grade point average, then anonymously completed Harter's 1981 Scale of Intrinsic versus Extrinsic Motivation. The Scale included five subscales grouped into two central components. The Mastery Motivation component was measured by three subscales: (1) preference for challenge versus preference for easy work assigned, (2) learning out of curiosity/interest versus pleasing the teacher or getting grades, and (3) independent mastery versus dependence on the teacher. The Autonomous Judgment component was measured by two additional subscales: (4) independent judgement versus reliance on the teacher's judgment, and (5) internal versus external criteria for assessing success or failure in school. Data analysis indicated that girls were significantly more intrinsic on autonomous judgement components and the judgement subscale. There were no significant differences on the mastery motivation component and the four other subscales. Grade point average positively correlated with mastery motivation for both sexes. Autonomous judgement significantly correlated with grades for girls but not boys. Overall, boys and girls had similar intrinsic motivation. (Contains 2 tables and 13 references.) (Author)

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Gender and Motivational Orientation Among High School Students

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Running Head : GENDER AND INTRINSIC MOTIVATION

Paper presented at the Annual Meeting of the American Psychological Association, New York, NY, August 1995.

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Abstract

This study provided an initial exploration of possible gender differences in intrinsic motivation among a random sample of white, high school age students, using Harter's (1981) Scale of Intrinsic versus Extrinic Motivation. Girls were significantly more intrinsic on Autonomous Judgement component and the Judgement subscale, while significant gender differences were not found on the Mastery Motivation component and the other four subscales. Correlational findings indicated that grades are positively associated with Mastery Motivation for both boys and girls, while Autonomous Judgement was significantly correlated for girls but not for boys. This study is placed within the context of Harter's earlier work and Deci and Ryan's Self-Determination theory.

Introduction

Intrinsically motivated learning is superior to extrinsically motivated learning (Deci & Ryan, 1985). A learning context which provides students with intrinsic motivation has been found to increase student creativity, conceptual learning, personal well being, and achievement (Deci, Vallerand, Pelletier, & Ryan, 1991). Most important for educators, investigators have found that many common school practices pertaining to reward, feedback, and teaching style can directly enhanced or diminish student intrinsic motivation (Deci et al., 1991).

While intrinsic motivation has been measured by a variety of different procedures, one useful method suitable for field research is Harter's (1980) Intrinsic-Extrinsic Orientation Scale (I-E Scale). This scale provides a measure of a student's intrinsic motivation within the classroom. Harter's (1980, 1981) scale views motivation as falling on a continuum from intrinsic to extrinsic. The Scale's five subscales are grouped into two central components : Mastery Motivation and Autonomous Judgement (Harter & Connell, 1984). The Mastery Motivation component is measured by three subscales : (1) Challenge : preference for challenge versus preference for easy work assigned, (2) Curiosity : learning out of curiosity/interest versus pleasing the teacher/getting grades, and (3) Mastery : independent mastery versus dependence on the teacher. The Autonomous Judgement component is measured by two additional subscales : (4) Judgement : independent judgement versus reliance on the teacher's judgement, and (5) Criteria : internal versus external criteria for assessing success/failure in school. Harter and Connell (1984) have placed these two motivational components within a network of other related variables, including perceived control,

achievement, perceived competence, competence evaluation, and affective reactions.

Gender differences using the I-E Scale were not investigated by Harter and have only been explored in a few studies with inconsistent findings. These findings were that girls demonstrated a more extrinsic orientation (Boggiano, Main, & Katz, 1991; Boggiano & Barrett, 1992), a more instrinsic orientation (Green & Foster, 1986), and no significant gender difference (Ryan & Grolnick, 1986). To date these studies have all drawn there samples from children in grades 3 to 7. However, given that the secondary school environment is less favorable to girls' learning style and motivational development, Boggiano et al. (1991) speculated that high school girls instrinsic motivation would be below that of their male classmates. This study will offer an initial exploration of gender differences among high school age youth using the I-E Scale.

Method

Subjects

The study was conducted at a semi-rural high school which serves approximately 450 middle class, white students. The sample was composed of 120 students drawn at random from each of the four grade levels equated by gender and grade level, excluding any student with an educational handicap (e.g., learning disability). Students were administered the measures anonymously and in small groups using test procedures as described by Harter (1980). Along with age and grade level, students reported their grade point average (check one of nine points on a continuum from 60 to 100).

Measure

The Scale of Intrinsic versus Extrinsic Orientation in the Classroom (I-E Scale). Harter (1980) developed a 30-item measure which consists of 6-items for each of the five subscales described earlier. The subscales generate average scores from 1 (low, extrinsic) to 4 (high, intrinsic). She has reported internal consistency reliabilities of the subscales as ranging from .68 to .84 and supported the scale's validity (Harter, 1980, 1981). While each of the subscales was identified as distinct from the others using factor analysis, Harter (1981) found that the first three subscales could be group into one higher order factor (Mastery Motivation) and the other two subscales into a second higher order factor (Autonomous Judgement). Harter (1980) explained that the Mastery Motivation factor assesses "what the child wants to do, likes to do, prefers"(p. 12) or intrinsic motivation; while the Autonomous Judgement factor involves "what does the child know, on what basis does he or she make decisions, how much has the child learned about the rules of the game called school" (p. 12) or autonomous judgements.

Results

The gender comparisons on the I-E Scale are reported in Table I. Girls were more intrinsic on the Judgement subscale and Autonomous Judgement component score. Following Boggiano et al. (1991) analysis, gender differences were examined using quarter groupings for both Mastery Motivation and Autonomous Judgement components (see Table II). Girls were more intrinsic for both the 3rd and 4th quarters of Mastery Motivation, and for the first three quarters of Autonomous Judgement. Using a 2 (Gender) by 4 (Quarter) ANOVA, a significant Interaction was

found for Mastery Motivation ($F(3, 112) = 3.06$, $p < .05$), while a significant Interaction for Autonomous Judgement was not evident ($F(3, 112) = .04$). The significant interaction for Mastery Motivation is consistent with Boggiano et al. (1991) study; however, the pattern of gender differences is notably different, as girls scores were not more extreme at the high and low ends as found earlier. In fact, girls scores were consistently higher than boys for both components, except the first quarter of Mastery Motivation.

Insert Tables I and II

Correlations revealed that student reported grade point averages were associated both with Mastery Motivation ($r(118) = .44$, $p < .001$) and Autonomous Judgement ($r(118) = .23$, $p < .01$). Along with these relationships is the finding of higher grades reported by girls (boys M = 82. 67, SD = 7.67; girls M = 86.4, SD = 7.32; $t(118) = 2.69$, $p < .01$), indicating a possible explanation for the gender differences found on the I-E Scale. However, examining boys and girls separately, grades and I-E Scale correlations were computed and then these correlational differences were compared using a Fisher Z transformation : Mastery Motivation [boys $r(58) = .52$, $p < .001$; girls $r(58) = .37$ $p < .01$, $Z = 1.01$, N.S.] and Autonomous Judgement [boys $r(58) = .01$; girls $r(58) = .38$ $p < .01$, $Z = 2.08$, $p < 01$]. Consequently, gender differences on Autonomous Judgement cannot be attributed to higher grades earned by girls.

Discussion

Investigators have often noted the impersonal nature of the secondary school environment as a central cause for the steady decline in student

intrinsic motivation (Eccles & Midgley, 1990; Harter , 1981). These authors have focused their critique on the secondary schools' in a variety of areas including their narrow range of instructional practices, use of ability grouping, limited scope of evaluative methods, and unsatisfactory teacher-student relations. Huston and Alvarez (1990) suggest that the impersonal nature of secondary schools may be especially harmful to girls, as the typical school environment may be better suit to the average boy's learning style, which is more comfortable with a heavy reliance on independent work. Girls tend to prefer learning environments that include adult interaction, models, and frequent feedback. Based on these findings and speculations, it would seem likely that by secondary school girls would display lower intrinsic Mastery Motivation than boys. In this the first study using the I-E Scale with secondary school students, this speculation has not been confirmed.

A possible explanation for this study's lack of gender differences regarding Mastery Motivation may be found in Self-Determination Theory (Deci, et al., 1991) which posits the existence of three basic psychological needs which energize human behavior : competence, relatedness, and autonomy. The second of these needs pertains to the development of secure and satisfactory connections within one's school environment. Some evidence indicates that adolescent girls to a greater extent than boys feel a greater sense of belonging within the secondary school (Goodenow, 1992; Hagborg, 1994), which may possibly more adequately meet their relatedness needs, and in turn this could lessen the impact of other unfavorable educational practices. Indeed the rich complexity of school culture extends well beyond the boundaries of experimental studies, and while educational practices may decrease intrinsic motivation among girls in

one manner, other features of the school environment, such as school belonging or their higher grades, may increase their sense of competence and belonging which thereby results in their higher intrinsic motivation.

One noteworthy gender correlational difference was found between grades and Autonomous Judgement. While grades may be interpreted in somewhat differently by boys. Within Harter's model of motivation (Harter & Connell, 1984), Autonomous Judgement is thought to be the end point of a sequence of a number of variables (e.g. perceived control, competence

A number of important differences between the present study and previously conducted studies using the I-E Scale needed to be considered. The subjects for prior studies were younger (oldest were 7th graders). Also, prior investigators either did not use the Autonomous Judgement subscales (Ryan & Grolick, 1986, Green & Foster, 1985) or combined them with other subscales reporting only an average score (Boggiano et al. 1991; Boggiano & Barrett, 1992). In fact, Boggiano et al. (1991) deleted the Curiosity subscale and then combined the remaining four subscales to form one measure of intrinsic motivation, and then in her later study she combined all five subscales to form one composite score (Boggiano & Barrett, 1992). Subscale scores were not reported in either of these studies. Clearly, incomplete and use of differing I-E subscale combinations prevent direct comparisons among these studies. Future investigators are urged to follow Harter's (1980) recommend use of her scale to facilitate the development of a interpretable literature.

Finally, overall this study found very few gender differences on the I-E Scale (e.g., only one subscale); consequently it should be emphasized that in most respects boys and girls instrinsic motivation was found to be more

alike than different.

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Table I

Gender Comparisons on the I-E Scale

	Male		Female		t-test
	M	SD	M	SD	
Mastery Motivation					
Challenge	2.55	.60	2.71	.63	1.49
Curiosity	2.52	.50	2.57	.58	.54
Mastery	2.72	.48	2.80	.60	.81
Total	2.60	.43	2.70	.54	1.14
Autonomous Judgement					
Judgement	2.93	.49	3.13	.42	2.47**
Criteria	2.94	.49	3.01	.51	.84
Total	2.93	.40	3.07	.40	1.99*

*p < .05, **p < .01

Table II

A Comparison of Mastery Motivation and Autonomous Judgement by Gender and Quarter

Quarter	Mastery Motivation			Autonomous Judgement		
	Male	Female	t-test	Male	Female	t-test
1	2.11 (.31)	2.05 (.33)	.56	2.46 (.15)	2.59 (.18)	2.12*
2	2.47 (.07)	2.52 (.08)	1.89	2.79 (.08)	2.94 (.06)	5.49***
3	2.67 (.11)	2.82 (.11)	3.56**	3.02 (.04)	3.17 (.07)	6.98***
4	3.12 (.29)	3.39 (.27)	2.51*	3.45 (.29)	3.60 (.24)	1.59

*p < .05, **p < .01, ***p < .001

Note. Bracket numbers shown are standard deviations.